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(54) Title: MAGNETOELECTRONIC DEVICES BASED ON COLOSSAL MAGNETORESISTIVE THIN FILMS

(57) Abstract: The present invention is directed to the use of perovskite manganite thin films and other magnetic films that exhibit both planar Hall effect and biaxial magnetic anisotropy to form the active area in magnetic sensor devices and in magnetic bit cells used in magnetoresistive random access memory (MRAM) devices. The manganite thin films of the invention are ferromagnetic manganites of the formula $R_{1-x}A_xMnO_3$, wherein R is a rare-earth metal, A is an alkaline earth metal, and x is generally between about 0.15 and about 0.5.